

IN THE CLAIMS:

1. (Currently Amended) A puncture instrument comprising a plurality of puncture needles for puncturing the surface of a biologic body and for performing seriatim puncturing with each of the puncture needles, said puncture instrument comprising:

a puncture needle cartridge for housing a plurality of puncture needles connected in series in an axis direction of the puncture instrument,

each puncture needle comprising a body member and a needle member, wherein a base end of the needle member is secured in and substantially coaxial with the body member, and a needle point end protrudes forwardly; and the body member comprising a forward end and a rear end, wherein the forward end extends in the axial direction of the needle member to surround the needle point end, such that when connected to a second puncture needle, the forward end covers the outer surface of the rear end of the second puncture needle, and wherein the forward end and the rear end have substantially complementary shapes such that the needle members are hygienically maintained and deployed, and wherein a circumferential convex portion of the body member is on the radially inner side of the point end of the body member that extends in the axial direction of the forward end, a circumferential concave portion of the body member is on the part of the rear end ~~complementary~~ complementary to the convex portion, and they fit into each other when axially adjacent puncture needles are connected, such that the puncture needles are connected in such a manner that removal of a puncture needle pulls the next puncture needle to the puncture position,

the puncture needle cartridge comprising a plurality of puncture needle stopping members whose front ends are folded towards the inner wall of the puncture needle cartridge, wherein the stopping members engage a dent in a surface of each puncture needle body member and are located in the puncture needle cartridge at ~~intervals of~~ intervals of about the length of the body member of the puncture needle.

2. (Previously Presented) A puncture instrument as defined in Claim 1 wherein said puncture needle cartridge holds each of the respective puncture needles in such a manner that the needle point end of the puncture needle is protected by the rear end of the body member of another puncture needle which is positioned immediately to the front of the puncture needle.

3. (Previously Presented) A puncture instrument as defined in Claim 2 wherein the body member is an elastic deformation member, said puncture needle cartridge holds each puncture needle in a state where the needle point end of the puncture needle is protected by the rear end of the elastic deformation member of another puncture needle which is positioned immediately to the front of the puncture needle, and

the rear end of the elastic deformation member of one puncture needle elastically grips the forward end of the elastic deformation member of the next puncture needle.

4. (Previously Presented) A puncture instrument as defined in Claim 1 wherein
said puncture needle cartridge is located in a cylindrical case, and comprises:
a puncture needle cartridge stopping member for stopping the puncture needle cartridge
in a predetermined position in an axis direction of the case,
a biasing member for biasing the puncture needle cartridge in one direction in the case,
and
a puncture button for allowing the the biasing member to move the puncture needle
cartridge in the one direction, to start a puncture operation.
5. (Previously Presented) A puncture instrument as defined Claim 1 further including
a remaining quantity check means for checking the remaining quantity of the plurality of
puncture needles in the puncture needle cartridge.
6. (Original) A puncture instrument as defined in Claim 5 wherein
said remaining quantity check means has, on a side surface of the puncture instrument, a
puncture needle remaining quantity check window through which the puncture needles existing
in the puncture needle cartridge can be visually checked.
7. (Previously Presented) A puncture instrument as defined in Claim 1 wherein
said puncture needle cartridge is detachably located in the puncture instrument.

8. (Currently Amended) A puncture needle cartridge comprising a plurality of puncture needles for puncturing the surface of a biologic body, wherein the cartridge is housed in a puncture instrument for performing seriatim puncturing with each of the puncture needles, wherein

said puncture needle cartridge holds the plurality of puncture needles connected in series in an axis direction of the puncture instrument,

each puncture needle comprises a body member and a needle member, wherein a base end of the needle member is secured in and substantially coaxial with the body member, and a needle point end protrudes forwardly; and the body member comprises a forward end and a rear end, wherein the forward end extends in the axial direction of the needle member to surround the needle point end, such that when connected to a second puncture needle, the forward end covers the outer surface of the rear end of the second puncture needle, and wherein the forward end and the rear end have substantially complementary shapes such that the needle members are hygienically maintained and deployed, and wherein a circumferential convex portion of the body member is on the radially inner side of the point end of the body member that extends in the axial direction of the forward end, a circumferential concave portion of the body member is on the part of the rear end ~~complimentary~~ complementary to the convex portion, and they fit into each other when axially adjacent puncture needles are connected, such that the puncture needles are connected in such a manner that removal of a puncture needle pulls the next puncture needle to the puncture position,

the puncture needle cartridge comprising a plurality of puncture needle stopping members whose front ends are folded towards the inner wall of the puncture needle cartridge, wherein the stopping members engage a dent in a surface of each puncture needle body member and are located in the puncture needle cartridge at intervals of about the length of the body member of the puncture needle.

9. (Previously Presented) A puncture needle cartridge as defined in Claim 8 wherein the forward end of the body member of each of the plurality of puncture needles is fitted to the rear end of the body member of another puncture needle which is positioned immediately to the front of the puncture needle.

10. (Previously Presented) A puncture needle cartridge as defined in Claim 9 wherein the body member is an elastic deformation member, the rear end of the elastic deformation member of each puncture needle elastically grips the forward end of the elastic deformation member of the next puncture needle.

11. – 12. (Canceled)

13. (Previously Presented) A puncture needle cartridge as defined in Claim 9, wherein a fitting strength between the respective puncture needles is larger than a load capable of disengaging the puncture needle from a respective puncture needle stopping member.

14. (Original) A puncture needle cartridge as defined in Claim 8 further including
a puncture needle retaining elastic member for holding a puncture needle positioned at the head of the puncture needle cartridge to prevent escape and dropout of the puncture needle from the puncture instrument body.
15. (Original) A puncture needle cartridge as defined in Claim 14 wherein
said puncture needle retaining elastic member is integrated with the puncture cartridge.
16. (Previously Presented) A puncture needle cartridge as defined in Claim 8 wherein
each of said puncture needles has, at its surface, two dents which are respectively engageable with a puncture needle stopping member for holding the puncture needle in the puncture needle cartridge and engaged with a puncture needle stopping elastic member for preventing escape and dropout of the puncture needle from the puncture needle cartridge.
17. (Previously Presented) A puncture needle cartridge as defined in Claim 8 wherein
a puncture needle group comprising said plurality of puncture needles comprises a puncture needle cap which protects the needle point end of the puncture needle that is positioned to the front of the group.

18. (Previously Presented) A puncture needle cartridge as defined in Claim 8 further including

a rotation stopping member for engaging the body of the puncture instrument to prevent the puncture instrument from rotating around the axis of the puncture instrument.

19. (Previously Presented) A puncture needle cartridge as defined in Claim 8 further including a remaining quantity check means for checking the remaining quantity of the plurality of puncture needles in the puncture needle cartridge.

20. (Previously Presented) A puncture needle cartridge as defined in Claim 19 wherein said remaining quantity check means comprises a variation of the respective colors of the plurality of puncture needles.

21. (Previously Presented) A puncture needle cartridge as defined in Claim 19 wherein said remaining quantity check means comprises numbers (production codes) assigned to the respective puncture needles.

22. (Previously Presented) A puncture needle cartridge as defined in Claim 8 of the present invention wherein

a puncture needle group comprising said plurality of puncture needles being connected in series is loaded in the puncture needle cartridge, by inserting new puncture needles in the puncture needle cartridge.

23. (Previously Presented) A puncture needle cartridge as defined in Claim 22 wherein said puncture needle group is loaded in the puncture needle cartridge in only one direction of the puncture needle cartridge.

24. (Previously Presented) A puncture needle cartridge as defined in Claim 22 further including
an improper loading prevention return member for preventing the puncture needle group from being loaded in a wrong direction in the puncture needle cartridge.

25. (Original) A puncture needle cartridge as defined in Claim 8 being detachable and attachable from/to the puncture instrument.

26. (Currently Amended) A puncture instrument set comprising
a puncture instrument having a puncture needle cartridge holding a plurality of puncture needles for puncturing the surface of a biologic body, said puncture instrument performing seriatim puncturing with each of the puncture needles, said puncture needles being connected in series in an axis direction of the cartridge, each puncture needle comprising a body member and a needle member, wherein a base end of the needle member is secured in and substantially coaxial with the body member, and a needle point end protrudes forwardly, the body member comprising a forward end and a rear end, wherein the forward end extends in the axial direction of the needle member to surround the needle point end, such that when connected to a second puncture needle,

the forward end covers the outer surface of the rear end of the second puncture needle, and wherein the forward end and the rear end have substantially complementary shapes such that the needle members are hygienically maintained and deployed, and wherein a circumferential convex portion of the body member is on the radially inner side of the point end of the body member that extends in the axial direction of the forward end, a circumferential concave portion of the body member is on the part of the rear end ~~complementary~~ complementary to the convex portion, and they fit into each other when axially adjacent puncture needles are connected, such that the puncture needles are connected in such a manner that removal of a puncture needle pulls the next puncture needle to the puncture position; and

a puncture needle replacement jig for setting the puncture needle cartridge at a puncture operation start position for a next puncture operation, and for removing a used puncture needle from the puncture needle cartridge, after puncturing by the puncture needle,

the puncture needle cartridge comprising a plurality of puncture needle stopping members whose front ends are folded towards the inner wall of the puncture needle cartridge, wherein the stopping members engage a dent in a surface of each puncture needle body member and are located in the puncture needle cartridge at intervals of about the length of the body member of the puncture needle.

27. (Original) A puncture instrument set as defined in Claim 26 wherein

said puncture needle replacement jig includes a replacement jig return member which holds the puncture needle after puncturing, and removes the puncture needle from the puncture needle cartridge.

28. (Previously Presented) A puncture instrument set as defined in Claim 26 wherein said puncture needle replacement jig is for setting the puncture needle cartridge at the puncture operation start position simultaneously with removal of the puncture needle after puncturing.
29. (Previously Presented) A puncture instrument set as defined in Claim 26 wherein when the puncture needle is removed from the puncture needle cartridge by the puncture needle replacement jig after puncturing, each of the plurality of puncture needles connected in series in the puncture needle cartridge is moveable toward a front end of the puncture needle cartridge until it is held by a puncture needle stopping member which is capable of holding each puncture needle at a predetermined position in the puncture needle cartridge.
30. (Previously Presented) A puncture instrument set as defined in Claim 26 further including
a puncture needle retaining elastic member for holding a puncture needle positioned at the head of the puncture needle cartridge to prevent escape and dropout of the puncture needle from the puncture instrument body;

wherein said puncture needle retaining elastic member is able to bend within an elasticity range of the puncture needle retaining elastic member due to fitting of the elastic member to a front end portion of the puncture needle replacement jig, thereby detaching the puncture needle positioned at the head of the puncture needle cartridge from the puncture needle retaining elastic member.

31. (Previously Presented) A puncture instrument set as defined in Claim 26 wherein said puncture instrument is provided with a remaining quantity check means for checking the remaining quantity of the plurality of puncture needles in the puncture needle cartridge.

32. (Withdrawn) A puncture instrument set comprising:

a puncture instrument which is provided with a puncture needle cartridge that holds a plurality of puncture needles for puncturing the surface of a biologic body, said puncture needles being connected in series in an axis direction of the cartridge, and said puncture instrument performing puncture operation continuously; and

a puncture needle disposal instrument which performs, after puncturing by the puncture needle, setting of the puncture needle cartridge at a puncture operation start position for a next puncture operation, removal of the used puncture needle from the puncture needle cartridge, and storage of the removed puncture needle to be discarded.

33. (Withdrawn) A puncture instrument set as defined in Claim 32 wherein

said puncture needle disposal instrument comprises

a disposal instrument return member for holding the used puncture needle, and
removing the used puncture needle from the puncture instrument, and

a cylindrical member which can store a plurality of the removed puncture needles
to be discarded.

34. (Withdrawn) A puncture instrument set as defined in Claim 32 wherein

said puncture needle disposal instrument comprises

a disposal instrument return member for holding the used puncture needle, and
removing the used puncture needle from the puncture instrument,

a cylindrical member which can store a plurality of the removed puncture needles
to be discarded, and

a disposal box having an opening into which the cylindrical member is inserted,
said disposal box being able to store the plural puncture needles to be discarded.

35. (Withdrawn) A puncture needle disposal instrument for removing, from a puncture
instrument having a holding member which detachably holds a puncture needle for puncturing
the surface of a biologic body, the puncture needle and discarding the same, comprising

a disposal instrument return member for holding the used puncture needle, and removing the puncture needle from the puncture instrument, and

a cylindrical member which stores a plurality of the removed puncture needles to be discarded.

36. (Withdrawn) A puncture needle disposal instrument as defined in Claim 35 wherein a front end of the cylindrical member is closed to prevent the disposal puncture needles stored in the cylindrical member from getting out of the cylindrical member.

37. (Withdrawn) A puncture needle disposal instrument for removing, from a puncture instrument having a holding member which detachably holds a puncture needle for puncturing the surface of a biologic body, the puncture needle and discarding the same, comprising

a disposal instrument return member for holding the used puncture needle, and removing the puncture needle from the puncture instrument,

a cylindrical member which stores a plurality of the removed puncture needles to be discarded, and

a disposal box having an opening into which the cylindrical member is inserted, said disposal box being able to store the plural puncture needles to be discarded.

38. (Withdrawn) A puncture needle disposal instrument as defined in Claim 37 wherein said cylindrical member and said disposal box are separable from each other.

39. (Withdrawn) A puncture needle disposal instrument as defined in Claim 38 further including

a means for closing the opening of the disposal box when the cylindrical member and the disposal box are separated from each other.

40. (Withdrawn) A puncture needle disposal instrument as defined in Claim 35 wherein the whole or a portion of the cylindrical member is transparent.

41. (Withdrawn) A puncture needle disposal instrument as defined in Claim 35 wherein the whole or portions of the cylindrical member and the disposal box is transparent.

42. (Withdrawn) A puncture needle disposal instrument as defined in Claim 37 further including

a member for guiding the outer shape of the front end portion of the puncture instrument, at the upper surface of the opening of the disposal box.

43. (Withdrawn) A puncture needle disposal instrument as defined in Claim 37 further including

a stopper for restricting the depth of insertion of the cylindrical member into the opening of the disposal box, said stopper being disposed in the vicinity of the opening of the disposal box.

44. (Previously Presented) A puncture instrument as defined Claim 1, wherein

the forward end of the body member is a generally bell-shaped or cylindrical body of revolution open at the lowered end, and includes a radially inwardly protruding fully annular lip;
and

the rear end of said body member includes an axially-extending hole for accommodating a needle point of another such puncture needle, and otherwise is a solid body of revolution whose exterior surface is substantially the geometric complement of the interior surface of the forward end, such that the forward end of the body member can fit over and grip the complementary rear end of another such puncture needle.

45. (Currently Amended) A puncture instrument as defined in Claim 1, further comprising:
~~comprising a plurality of puncture needles for puncturing the surface of a biologic body and for performing seriatim puncturing with each of the puncture needles, said puncture instrument comprising:~~

a cylindrical case, and

~~a removable puncture needle cartridge for housing a plurality of puncture needles connected in series in an axial direction of the puncture instrument, and~~

a loading cover on a side parallel to the axial direction of said cylindrical case, for permitting loading and unloading of the puncture needle cartridge into and out of the puncture instrument, wherein the puncture needle cartridge is removable.

46. (Previously Presented) A puncture instrument set comprising:

a puncture instrument having a puncture needle cartridge holding a plurality of puncture needles for puncturing the surface of a biologic body, said puncture instrument for performing seriatim puncturing with each of the puncture needles, said puncture needles being connected in series in an axial direction of the cartridge,

a puncture needle replacement jig for setting the puncture needle cartridge at a puncture operation start position for a next puncture operation, and for removing a used puncture needle from the puncture needle cartridge, after puncturing by the puncture needle,

each puncture needle including a first dent and a second dent in a surface thereof,

the puncture needle cartridge including a puncture needle retaining elastic member for engaging the first dent of the puncture needle body member which is positioned in a front end in the puncture needle cartridge to hold the puncture needle,

the puncture needle replacement jig including a replacement jig pressing part and a replacement jig return member, the replacement jig pressing part for pushing the puncture needle retaining elastic member outward to release engagement between the puncture needle retaining elastic member and the first dent in the puncture needle body member, and the replacement jig return member for engaging the second dent in the puncture needle body member to remove the puncture needle.